



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Philadelphia, PA	<b>Accident Number:</b>	DCA06MA022
<b>Date &amp; Time:</b>	02/07/2006, 2359 EST	<b>Registration:</b>	N748UP
<b>Aircraft:</b>	Douglas DC-8	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	3 Minor
<b>Flight Conducted Under:</b>	Part 121: Air Carrier - Non-scheduled		

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## Analysis

The Safety Board's full report is available at <http://www.nts.gov/publicn/2007/AAR0707.pdf>. The Aircraft Accident Report number is NTSB/AAR-07/07.

On February 7, 2006, about 2359 eastern standard time, United Parcel Service Company flight 1307, a McDonnell Douglas DC-8-71F, N748UP, landed at its destination airport, Philadelphia International Airport, Philadelphia, Pennsylvania, after a cargo smoke indication in the cockpit. The captain, first officer, and flight engineer evacuated the airplane after landing. The flight crewmembers sustained minor injuries, and the airplane and most of the cargo were destroyed by fire after landing. The scheduled cargo flight was operating under the provisions of 14 Code of Federal Regulations Part 121 on an instrument flight rules flight plan. Night visual conditions prevailed at the time of the accident.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: an in-flight cargo fire that initiated from an unknown source, which was most likely located within cargo container 12, 13, or 14. Contributing to the loss of the aircraft were the inadequate certification test requirements for smoke and fire detection systems and the lack of an on-board fire suppression system.

## Findings

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Occurrence #1: FIRE

Phase of Operation: DESCENT

### Findings

1. (C) CARGO/BAGGAGE - FIRE
2. (F) FIRE EXTINGUISHER,CARGO - LACK OF
3. FIRE WARNING SYSTEM,CARGO - INADEQUATE
4. SMOKE DETECTOR(S) - INADEQUATE
5. (F) ACFT/EQUIP,INADEQUATE STANDARD/REQUIREMENT
6. (F) INADEQUATE CERTIFICATION/APPROVAL

## Factual Information

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On February 7, 2006, about 2359 eastern standard time, United Parcel Service Company (UPS) flight 1307, a McDonnell Douglas DC-8-71F, N748UP, landed at its destination airport, Philadelphia International Airport (PHL), Philadelphia, Pennsylvania, after a cargo smoke indication in the cockpit. The captain, first officer, and flight engineer evacuated the airplane after landing. The flight crewmembers sustained minor injuries, and the airplane and most of the cargo were destroyed by fire after landing. The scheduled cargo flight was operating under the provisions of 14 Code of Federal Regulations Part 121 on an instrument flight rules flight plan. Night visual conditions prevailed at the time of the accident.

The accident occurred on the second day of a 5-day, 8-leg trip sequence for the flight crew. The airplane pushed back from the gate at Hartsfield-Jackson Atlanta International Airport, Atlanta, Georgia, and departed for PHL about 2241. The first officer was the flying pilot, and the captain performed the duties of the pilot monitoring.

The accident flight crew reported that the flight was uneventful until just after beginning the descent to PHL. At 2334:39, while the airplane was descending through flight level 310 about 50 nautical miles southwest of Washington, D.C., the cockpit voice recorder (CVR) recorded the first officer asking the captain and the flight engineer if they detected an odor that smelled "like wood burning." The flight engineer replied that he had "smelled it for a couple of seconds." About 1 minute later, the first officer stated, "[it's] pretty strong now." Subsequently, the CVR recorded a sound similar to the cockpit door or seat operating and the flight engineer stating, "[it's] more in the back." About 3 1/2 minutes later, the first officer again stated that the odor smelled like wood, and the flight engineer agreed that the odor did smell like wood burning and stated that it did not smell electrical in nature.

During postaccident interviews, the captain stated that he considered diverting to another airport soon after the odor was first detected but that he chose to continue to PHL because there was no evidence of a problem, such as the illumination of the cargo smoke warning lights. The first officer stated that the odor did not appear to be a threat because the flight engineer did not see any visible smoke; therefore, the first officer did not believe that there was any need to divert. Further, the accident flight crew stated that unusual odors could be common from nonthreatening factors (such as flying over forest fires or unusual cargo).

Over the next 4 minutes, the captain and flight engineer tried to identify the source of the odor by conducting several emergency checklist steps, including increasing the bleed air flow and checking the bleed air switches. As the airplane was descending through about 18,000 feet and was about 65 miles from PHL, the CVR recorded the flight engineer stating that he set the air conditioning packs to maximum flow and turned off the recirculation fan. Shortly thereafter, the flight engineer and captain conducted the Approach checklist.

At 2344:59, the first officer contacted the PHL Terminal Radar Approach Control, and the approach controller instructed the flight to descend to 6,000 feet. The CVR then recorded the captain asking, "can you still smell it in the back there?" The flight engineer replied, "yeah . . . smells like it was more to the back there." The first officer then asked, "smells like cardboard

burning doesn't it? you didn't see smoke though something like that?" The flight engineer again went back to check the main cargo compartment with his flashlight, and he stated that the odor was "definitely stronger in the back" but that there was no smoke or haze. Over the next 10 minutes, the captain and flight engineer continued to troubleshoot the problem.

At 2354:42, as the airplane was descending through about 3,600 feet, the flight engineer stated, "we got cargo smoke." The captain replied, "let's do that checklist if you got time." The first officer then stated that he would be turning toward the airport. At 2355:01, the PHL approach controller cleared the visual approach to runway 27R and then instructed the flight crew to contact the air traffic control tower (ATCT). Ten seconds later, the captain made initial contact with the ATCT local controller, who cleared the flight to land on runway 27R. After acknowledging the clearance, the captain reported that the cargo smoke indicator had illuminated and requested that emergency response equipment meet them upon landing. The local controller immediately activated the crash phone and advised approach control of the emergency.

At 2355:57, the flight engineer stated, "[it's] showing that we have a lower aft cargo fire section C." Subsequently, the captain told the first officer and flight engineer to don their oxygen masks if they had not done so already. The captain then asked the flight engineer to accomplish the Lower and/or Main Cargo Compartment Smoke or Fire checklist by himself, and the flight engineer proceeded to execute the checklist.

According to air traffic control transcripts, the Philadelphia approach controller asked the PHL ATCT local controller whether the flight was going to land on the left side, referring to runway 27L, which is the runway at PHL designated for use in emergency situations. At 2356:12, the local controller cleared the flight to land on runway 27L, and the captain acknowledged the landing clearance but not the change in landing runway.

The flight engineer continued the Lower and/or Main Cargo Compartment Smoke or Fire checklist items. When he reached the step to close the cargo air shutoff valve, he stated that he had to "go in the back and do that." During postaccident interviews, the flight engineer stated that, when he opened the door of the access panel to the cargo air shutoff valve, black smoke billowed out of the access panel.

At 2357:47, the first officer called for the Landing checklist. About 21 seconds later, the ATCT local controller stated, "just confirmed you are lined up for the left side it appears that you are lined up for the right." The first officer replied, "I thought we were cleared for the right . . . are we cleared to land on the right?" At 2358:16, the local controller replied, "you are cleared to land on the right we will just tell fire." The airplane landed on runway 27R about 2359.

Immediately after touchdown, the flight engineer reported smoke in the cockpit. After the airplane came to a stop, the first officer called for an emergency evacuation, and the captain and first officer conducted the Emergency Evacuation checklist. All of the flight crewmembers successfully evacuated the airplane using the emergency slide located at the left forward door.

## Co-Pilot Information

<b>Certificate:</b>	Airline Transport	<b>Age:</b>	40, Male
<b>Airplane Rating(s):</b>	Multi-engine Land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>		<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>		<b>Second Pilot Present:</b>	
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 1 Without Waivers/Limitations	<b>Last FAA Medical Exam:</b>	02/01/2006
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	01/01/2006
<b>Flight Time:</b>	7500 hours (Total, all aircraft), 5 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Douglas	<b>Registration:</b>	N748UP
<b>Model/Series:</b>	DC-8	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	45948
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	
<b>Date/Type of Last Inspection:</b>	02/01/2006, Continuous Airworthiness	<b>Certified Max Gross Wt.:</b>	328000 lbs
<b>Time Since Last Inspection:</b>	2 Hours	<b>Engines:</b>	4 Turbo Fan
<b>Airframe Total Time:</b>	67676 Hours at time of accident	<b>Engine Manufacturer:</b>	CFM International
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	CFM56-2C1
<b>Registered Owner:</b>	UNITED PARCEL SERVICE CO	<b>Rated Power:</b>	22000
<b>Operator:</b>	UNITED PARCEL SERVICE CO	<b>Operating Certificate(s) Held:</b>	Flag carrier (121)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	IPXX

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	kphl	Distance from Accident Site:	
Observation Time:	2254 EST	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.05 inches Hg	Temperature/Dew Point:	1°C / -8°C
Precipitation and Obscuration:			
Departure Point:	ATLANTA, GA (ATL)	Type of Flight Plan Filed:	
Destination:	PHILADELPHIA, PA (PHL)	Type of Clearance:	IFR
Departure Time:	2241 EST	Type of Airspace:	

## Airport Information

Airport:	PHILADELPHIA INTL (PHL)	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	Visual
Runway Length/Width:		VFR Approach/Landing:	

## Wreckage and Impact Information

Crew Injuries:	3 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	In-Flight and On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Minor	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	Frank Hilldrup	Report Date:	01/31/2008
Additional Participating Persons:	Bob Drake		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.ntsb.gov/pubdms/">http://dms.ntsb.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).